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10/542,029	07/13/2005	Akihiro Masuda	050448	6762
23850	7590	02/22/2007	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			WONG, EDNA	
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SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/22/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/542,029	MASUDA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 16 January 2007.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,6 and 8-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,6 and 8-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | Paper No(s)/Mail Date. _____.                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____.                         |

This is in response to the Amendment dated January 16, 2007. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Response to Arguments***

#### **Claim Objections**

Claim 1 has been objected to because of minor informalities.

The objection of claim 1 has been withdrawn in view of Applicants' amendment.

#### **Claim Rejections - 35 USC § 112**

Claims 1-13 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 1-13 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

#### **Claim Rejections - 35 USC § 103**

I. Claims 1-12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/31027 ('027) and Eiermann et al. (US Patent No. 6,531,629 B1) in combination with Nobel et al. (US Patent No. 4,871,429).

With regards to claims 2-5 **and** 7, the rejection under 35 U.S.C. 103(a) as being

unpatentable over WO 00/31027 ('027) and Eiermann et al. in combination with Nobel et al. has been withdrawn in view of Applicants' amendment. Claims 2-5 and 7 have been cancelled.

With regards to claims **1, 6 and 8-12** under 35 U.S.C. 103(a) as being unpatentable over WO 00/31027 ('027) and Eiermann et al. in combination with Nobel et al. is as applied in the Office Action dated September 18, 2006 and incorporated herein. The rejection has been maintained for the following reasons:

Applicants state that due to the impurities resulting from the different preparation methods, an alkanesulfonic acid produced by the method of the reference will not have the same composition as an aliphatic sulfonic acid produced by the method recited in claim 1.

In response, claim 1 is directed to a tin-containing plating bath. The bath has a composition, but the purified aliphatic sulfonic acid does not. The alkanesulfonic acid disclosed by Eiermann is similar to the purified aliphatic sulfonic acid recited in claim 1 because they are structurally the same.

It is the purified aliphatic sulfonic acid that is in the bath, not the "by purifying an aliphatic sulfonic acid which has been produced by hydrolyzing an alkylsulfonyl halide" as recited in claim 1, line 13-14. This limitation is not a physically component of the bath, and therefore, fails to distinguish the bath from the prior art.

Applicants state that claim 6 requires the presence of "at least two sulfur-

containing compounds selected from the group consisting of dimethyldisulfide, S-methyl methanethiosulfonate,  $\alpha$ -chlorodimethylsulfone and  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone" in the plating bath, which would not be the case with the bath in Eiermann et al.

In response, Eiermann teaches that S-methyl methanethiosulfate can form during the preparation of methanesulfonic acid (col. 2, lines 48-49; and col. 6, line 41-44). It is deemed that any unreacted dimethyl disulfide and the S-methyl methanethiosulfate formed would have been in the bath to some degree.

Applicants state that in amended claim 1, the content of these sulfur-containing compounds in the tin-containing plating bath is limited as follows: less than 200 ppm of dimethyl disulfide, less than 4 ppm of S-methyl methanethiosulfonate, less than 4 ppm of  $\alpha$ -chlorodimethylsulfone, and less than 4 ppm of  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone.

Therefore, the aliphatic sulfonic acids used in the present invention are clearly different from the alkanesulfonic acids produced by the oxidation disclosed in Eiermann et al. Applicant submits that Eiermann et al. does not inherently disclose a bath meeting these limitations on the impurities.

In response, the Examiner maintains that the specific species of sulfur-containing compound or compounds having one or more sulfur atoms and one or more chlorine atoms in the molecule would have been absent in the plating bath if its genus is absent

in the plating bath.

The tin plating bath of Eiermann and Nobel would have comprised  $\alpha$ -chlorodimethylsulfone and  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone in the plating bath of less than 4 ppm of each (= 0 ppm).

Applicants state that Eiermann et al. is totally silent about the influence of specific impurities, which are contained in the alkanesulfonic acids, on the properties of tin-containing plating films. Therefore, the improvement in reflowability and appearance of plating films to a substantial degree by using the aliphatic sulfonic acid which is purified so that the content of each sulfur-containing compound in the plating bath is as follows: less than 200 ppm of dimethyl disulfide, less than 4 ppm of S-methyl methanethiosulfonate, less than 4 ppm of  $\alpha$ -chlorodimethylsulfone, and less than 4 ppm of  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone is completely **unexpected** over Eiermann et al.

In response, if the composition is physically the same, it must have the same properties (MPEP § 2112.01(II)).

Applicants state that there is no disclosure or suggestion in Nobel et al. for use of an aliphatic sulfonic acid produced by hydrolyzing an alkylsulfonyl halide as a base acid in a tin-containing plating bath.

In response, it is the purified aliphatic sulfonic acid that is in the bath, not the "by

purifying an aliphatic sulfonic acid which has been produced by hydrolyzing an alkylsulfonyl halide" as recited in claim 1, line 13-14. This limitation is not a physically component of the bath, and therefore, fails to distinguish the bath from the prior art.

Applicants state that in addition, there is no suggestion in Nobel et al. for the effects resulting from the limitations of claim 1, and these results are completely **unexpected** over Nobel et al.

In response, if the composition is physically the same, it must have the same properties (MPEP § 2112.01(II)).

II. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 00/31027 ('027)** and **Eiermann et al.** (US Patent No. 6,531,629 B1) in combination with **Nobel et al.** (US Patent No. 4,871,429) as applied to claims 1-12 above, and further in view of **IBM** (Technical Disclosure Bulletin, Vol. 32, No. 3B, August 1, 1989, pp. 36-37).

The rejection of claim 13 under 35 U.S.C. 103(a) as being unpatentable over **WO 00/31027 ('027)** and Eiermann et al. in combination with Nobel et al. (US Patent No. 4,871,429) as applied to claims 1-12 above, and further in view of IBM is as applied in the Office Action dated September 18, 2006 and incorporated herein. The rejection has been maintained for the reasons as discussed above.

Applicants further state that the IBM Technical Disclosure Bulletin does not disclose or suggest a tin-containing plating bath satisfying the limitations of claim 1,

from which claim 13 depends.

In response, the rejection is not overcome by pointing out that one reference does not contain a particular limitation when reliance for that teaching is on another reference. *In re Lyons* 150 USPQ 741 (CCPA 1966). Moreover, it is well settled that one cannot show nonobviousness by attacking the references individually where, as here, the rejection is based on a combination of references. *In re Keller* 208 USPQ 871 (CCPA 1981); *In re Young* 159 USPQ 725 (CCPA 1968).

***Response to Amendment***

***Claim Rejections - 35 USC § 112***

Claims 1, 6 and 8-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 1**

line 15, "the content of dimethyldisulfide" lacks antecedent basis.

line 16, "the content of S-methyl methanethiosulfonate" lacks antecedent basis.

line 17, "the content of  $\alpha$ -chlorodimethylsulfone" lacks antecedent basis.

line 18, "the content of  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone" lacks

antecedent basis.

Claim 8

lines 1-3, recite "wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to concentration under reduced pressure while heating."

It appears that the "one" is the same as the one recited in claim 1, line 13. However, it is unclear if it is. If it is not, then what is the relationship between the ones?

It appears that the "subjecting" is the same as the purifying recited in claim 1, line 13. However, it is unclear if it is. If it is not, then what is the relationship between the subjecting and the purifying?

It appears that "an aliphatic sulfonic acid" is the same as the aliphatic sulfonic acid recited in claim 1, lines 13-14. However, it is unclear if it is. If it is, then it is suggested the word "an" be amended to the word -- the --. If it is not, then what is the relationship between the aliphatic sulfonic acids?

It is unclear what is the relationship between the "concentration under reduced pressure while heating" and the hydrolyzing an alkylsulfonic halide recited in claim 1, line 14.

Claim 9

lines 1-3, recite "wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to solid phase extraction in which the aliphatic sulfonic acid is brought into contact with an adsorbent."

It appears that the "one" is the same as the one recited in claim 1, line 13. However, it is unclear if it is. If it is not, then what is the relationship between the ones?

It appears that the "subjecting" is the same as the purifying recited in claim 1, line 13. However, it is unclear if it is. If it is not, then what is the relationship between the subjecting and the purifying?

It appears that "an aliphatic sulfonic acid" is the same as the aliphatic sulfonic acid recited in claim 1, lines 13-14. However, it is unclear if it is. If it is, then it is suggested the word "an" be amended to the word -- the --. If it is not, then what is the relationship between the aliphatic sulfonic acids?

It is unclear what is the relationship between the "solid phase extraction in which the aliphatic sulfonic acid is brought into contact with an adsorbent" and the hydrolyzing an alkylsulfonic halide recited in claim 1, line 14.

Claim 10

lines 1-3, recite "wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to solid phase extraction at least twice, using the same or different kinds of adsorbents."

It appears that the "one" is the same as the one recited in claim 9, line 2.

However, it is unclear if it is. If it is not, then what is the relationship between the ones?

It appears that the "subjecting" is the same as the subjecting recited in claim 9, line 2. However, it is unclear if it is. If it is, then it is suggested the word -- the -- be inserted after the word "by". If it is not, then what is the relationship between the subjectings?

It appears that "an aliphatic sulfonic acid" is the same as the aliphatic sulfonic acid recited in claim 1, lines 13-14. However, it is unclear if it is. If it is not, then what is the relationship between the aliphatic sulfonic acids?

It is unclear what is the relationship between the "solid phase extraction at least twice, using the same or different kinds of adsorbents" and the hydrolyzing an alkylsulfonic halide recited in claim 1, line 14.

It appears that the "solid phase extraction" is the same as the solid phase extraction recited in claim 9, lines 2-3. However, it is unclear if it is. If it is, then it is suggested the word -- the -- be inserted after the word "to". If it is not, then what is the relationship between the solid phases?

It is unclear what is the relationship between "the same or different kinds of adsorbents" and the adsorbent recited in claim 9, line 3.

#### Claim 11

lines 1-3, recite "wherein the purified aliphatic sulfonic acid is one obtained by

subjecting an aliphatic sulfonic acid to a combination of concentration under reduced pressure and solid phase extraction."

It appears that the "one" is the same as the one recited in claim 1, line 13.

However, it is unclear if it is. If is it not, then what is the relationship between the ones?

It appears that the "subjecting" is the same as the purifying recited in claim 1, line 13. However, it is unclear if it is. If it is not, then what is the relationship between the subjecting and the purifying?

It appears that "an aliphatic sulfonic acid" is the same as the aliphatic sulfonic acid recited in claim 1, lines 13-14. However, it is unclear if it is. If it is, then it is suggested the word "an" be amended to the word -- the --. If it is not, then what is the relationship between the aliphatic sulfonic acids?

It is unclear what is the relationship between "a combination of concentration under reduced pressure and solid phase extraction" and the hydrolyzing an alkylsulfonic halide recited in claim 1, line 14.

#### ***Claim Rejections - 35 USC § 103***

##### ***Bath***

I. Claims 1, 6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nobel et al.** (US Patent No. 4,871,429) in combination with **Henderson et al.** (US Patent No. 5,583,253).

Nobel teaches a tin-containing plating bath comprising:

(a) a soluble stannous salt, or

a mixture of a soluble stannous salt (= divalent tin) [col. 9, lines 5-10]

and a least one soluble salt selected from the group consisting of copper salts, bismuth salts, silver salts, indium salts, zinc salts, nickel salts, cobalt salts and antimony salts (= bismuth compounds) [col. 8, lines 12-28]; and

(b) at least one aliphatic sulfonic acid selected from the group consisting of alkanesulfonic acids and alkanolsulfonic acids (= alkyl or alkylol sulfonic acids) [col. 4, lines 6-9],

the content of dimethyldisulfide in the plating bath is less then 200 ppm (= 0 ppm),

the content of S-methyl methanethiosulfonate is less than 4 ppm (= 0 ppm),

the content of  $\alpha$ -chlorodimethylsulfone is less than 4 ppm (= 0 ppm), and

the content of  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone is less than 4 ppm (= 0 ppm).

The alkanesulfonic acid is methanesulfonic acid (= methane sulfonate) [col. 9, lines 5-10].

The bath of Nobel differs from the instant invention because Nobel does not disclose the following:

a. Wherein the aliphatic sulfonic acid is a purified aliphatic sulfonic acid, as recited in claim 1.

Noble teaches alkyl or alkylol sulfonic acids (col. 4, lines 6-9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the alkyl or alkylol sulfonic acids described by Nobel with wherein the aliphatic sulfonic acid is a purified aliphatic sulfonic acid because the purer the chemical reactants are in the plating bath, the fewer the side reactions and the purer the products produced.

b. Wherein the purified aliphatic sulfonic acid is one obtained by purifying aliphatic sulfonic acid which has been produced by hydrolyzing an alkylsulfonic halide, as recited in claim 1.

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because this claim limitation is not a component of the plating bath (it is a process limitation). Therefore, this claim limitation fails to compositionally distinguish the plating bath from the prior art (MPEP § 2113).

Furthermore, Nobel teaches that the alkyl or alkylol sulfonic acids useful in his invention are those which are water soluble or soluble in the bath (col. 4, lines 6-9).

Like Nobel, Henderson teaches an alkyl sulfonic acid (= alkanesulfonic acid). Henderson teaches that crude aqueous MSA containing oxidizable impurities is treated with chlorine in an amount sufficient to convert said oxidizable impurities to MSC and the MSC containing aqueous MSA is subjected to sufficient heat to hydrolyze the MSC to MSA (col. 2, lines 26-45). The crude aqueous MSA contains chlorides, DMDS,

MMTS, MSC, MSA, water and non-condensed chlorine (col. 2, lines 52-61).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the alkyl or alkylol sulfonic acids described by Nobel by using a purified aliphatic sulfonic acid is one obtained by purifying aliphatic sulfonic acid which has been produced by hydrolyzing an alkylsulfonic halide because the purified alkanesulfonic acid disclosed by Henderson would have been suitable as the water soluble or bath soluble alkyl sulfonic acid used by Nobel.

c. Wherein at least two sulfur-containing compounds selected from the group consisting of dimethyldisulfide, S-methyl methanethiosulfonate,  $\alpha$ -chlorodimethylsulfone and  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone are present in the plating bath; and the total content of the sulfur-containing compounds in the plating bath is less than 2 ppm, as recited in claim 6.

Nobel teaches that the alkyl or alkylol sulfonic acids useful in his invention are those which are water soluble or soluble in the bath (col. 4, lines 6-9).

Like Nobel, Henderson teaches an alkyl sulfonic acid (= alkanesulfonic acid). Henderson teaches that crude aqueous MSA containing oxidizable impurities is treated with chlorine in an amount sufficient to convert said oxidizable impurities to MSC and the MSC containing aqueous MSA is subjected to sufficient heat to hydrolyze the MSC to MSA (col. 2, lines 26-45). The crude aqueous MSA contains chlorides, DMDS, MMTS, MSC, MSA, water and non-condensed chlorine (col. 2, lines 52-61).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the bath described by Nobel with wherein at least two sulfur-containing compounds selected from the group consisting of dimethyldisulfide, S-methyl methanethiosulfonate,  $\alpha$ -chlorodimethylsulfone and  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone are present in the plating bath; and the total content of the sulfur-containing compounds in the plating bath is less than 2 ppm because using the purified alkanesulfonic acid disclosed by Henderson would have naturally provided at least two sulfur-containing compounds selected from the group consisting of dimethyldisulfide, S-methyl methanethiosulfonate,  $\alpha$ -chlorodimethylsulfone and  $\alpha$ -methylsulfonyl- $\alpha,\alpha$ -dichlorodimethylsulfone in the plating bath; and the total content of the sulfur-containing compounds in the plating bath is less than 2 ppm.

d. Wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to concentration under reduced pressure while heating, as recited in claim 8.

e. Wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to solid phase extraction in which the aliphatic sulfonic acid is brought into contact with an adsorbent, as recited in claim 9.

f. Wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to solid phase extraction at least twice, using the same or different kinds of adsorbents, as recited in claim 10.

g. Wherein the purified aliphatic sulfonic acid is one obtained by subjecting an aliphatic sulfonic acid to a combination of concentration under reduced pressure and solid phase extraction, as recited in claim 11.

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because these claim limitations are not components of the plating bath (they are *process limitations*). Therefore, they fail to compositionally distinguish the plating bath from the prior art (MPEP § 2113).

*Method*

II. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Nobel et al.** (US Patent No. 4,871,429) in combination with **Henderson et al.** (US Patent No. 5,583,253) as applied to claims 1, 6 and 8-12 above, and further in view of **IBM** (Technical Disclosure Bulletin, Vol. 32, No. 3B, August 1, 1989, pp. 36-37).

Nobel and Henderson are as applied above and incorporated herein.

The method of Nobel differs from the instant invention because Nobel does not disclose a bump forming method comprising forming a bump with the use of the plating bath of claim 1, as recited in claim 13.

Nobel teaches that tin and tin/lead alloy deposits are useful for the electronics industry, particularly in the manufacture of printed circuit boards, electrical contacts and connectors, semiconductors, electrical conduits, and other related parts (col. 1, lines 27-32).

Like Nobel, IBM teaches the electrodeposition of tin-lead alloys. IBM teaches electroplating tin/lead eutectic solder 5 to make the Fig. 5 structure (pages 1 and 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Nobel by forming a bump with the use of the plating bath of claim 1 because depositing tin/lead as solder bumps on a printed circuit board would have attached a semiconductor device to the printed circuit board as taught by IBM (pages 1 and 2; and Figure 1).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Edna Wong  
Primary Examiner  
Art Unit 1753

EW  
February 19, 2007